

so brilliant as were the *Leonids* of November 13–14, 1866, yet that they were decidedly more numerous. For whilst with the aid of one assistant, at the date just mentioned, I was enabled to estimate their apparition during the eight minutes (only) of the richest part of the shower, at 200 per minute, from 1^h 2^m to 1^h 10^m A.M. (see *Report of British Association* for 1867, p. 390), I should say that continuously almost, from 6^h to 7^h P.M. on Friday last, they were relatively fully 250 per minute.

A few that burst into view very close to γ *Andromedæ* appeared, as would necessarily be the case, almost if not quite stationary, but presenting sometimes a mass of luminous vapour fully half a degree sometimes in extent. All were of a white colour, and many left trains behind them for a few seconds of a ruddy and greenish hue. Unfortunately, after 7^h 15^m P.M., the sky became almost completely obscured by clouds and mist, though about 8 P.M. I could still perceive, through some partial breaks in the vapours, that the glorious pageant was still proceeding.

Watching for about a quarter of an hour on the following evening, November 28, with a perfectly clear sky from about 6^h to 6^h 15^m I only saw three meteors—of which the largest, equal in brilliancy to a star of the 1st magnitude, shot from near ϵ *Arietis* to a point midway between *Alpherat* and *Algenib*, quite another radiant therefore from that of November 27.

I imagine my estimate of the numbers seen on the day last mentioned will be questioned by some observers, but none the less should I maintain my opinion respecting them.

Meteoric Display, November 27, 1885.

By Colonel M. F. Ward.

The sky at the time had light clouds towards the south, but was intensely clear, and became suddenly alive with meteors falling to all points of the horizon from the small star χ *Andromedæ* (Proctor's map), with a slow motion, giving very much the idea of flakes of snow falling in a dead calm.

Some were very minute—barely visible—others as large as *Jupiter* or *Venus*. The latter travelled rapidly, leaving luminous streaks in their path, lasting in some cases more than half a minute—long enough to trace their direction to the above-named star.

Great numbers—and these of considerable size but of slow motion—came into view within a degree or two only of the horizon.

After 7.30 they diminished gradually in number. The sky clouded from 8 to 9.30, but the meteors were still seen in the intervals between the clouds.

At 9.30, sky again cloudless. Meteors still falling, though

in diminished numbers, on all sides. At midnight there were only occasional ones, and these chiefly in the west.

At first counting was quite impossible, but at 6.25 I was able to count, in one minute, between the N. and N.W. points, 104 meteors, my daughter counting 60 in the opposite quarter, and another 39 from the radiating point, in the same time (radiates).

At 10 P.M. I counted from that point 20, at 11 P.M. 7, and at midnight two meteors.

I have seen nothing like it since 1866.

Partenkirchen, Bavaria :

5.45 p.m. local time (44 m. east of Greenwich). Lat. 47°30' N.;
long. 11°5' E.

*The Meteoric Shower as seen at Clapham on the night of
November 27, 1885. By E. J. Spitta.*

Observations were commenced at 6.10 P.M., and from that time until the clouds gathered, at 7 P.M., a careful watch was kept, and 660 meteors noted. As a matter of fact, I think the numbers should be 600 for the first 40 minutes, and 60 for the last 10, as the weather became thick at that time, and only the larger meteors could be seen and counted. Doing this, we have an average of about one in every four seconds.

Watch was again kept at 10.15, but few were then seen, and at 10.40 the clouds again gathered, and it commenced to rain.

Nearly all the meteors were small, about the 3rd or 4th magnitude, excepting a few which were larger, about equal to stars of the 1st magnitude, and two especially large ones, which rivalled *Jupiter* at opposition.

Speaking generally, very few left any train or sparks behind them; but, on the other hand, nearly all brightened up considerably before extinction.

With respect to colour: the heads were nearly all of a yellowish-white, but the larger type were pale blue. The two large ones before referred to as being so very bright, exhibited a decided bluish-white colour, like the magnesium balloons. These two left decided trains behind them, which had a tendency to redness, but they did not appear to last very long, although the meteors themselves travelled much slower than the rest.

No sound was heard of any kind during the whole time of observation, although such was carefully listened for.

The generality of the meteors did not last more than a second or a second and a half, but at the time of observation they were falling so quickly that it is difficult to make any definite statement.

Most of them indicated a starting-point somewhere near γ *Andromedæ*, but others a point nearer *Algol*, or 51 *Andromedæ*.

The path described in arc of most of the meteors was very